

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
APPLICATION FOR PATENT

TITLE:           **WEIGHT TRAINING STAND**

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## **WEIGHT TRAINING STAND**

### **BACKGROUND OF THE INVENTION**

#### Field of the Invention

This invention relates generally to exercise equipment, and more particularly to stands or racks for storage of weight training equipment such as dumbbells and weight plates.

#### Description of the Related Art

The physiological, as well as psychological, benefits of regular exercise are now widely recognized. Most people, however are unable to participate in active exercise such as running, swimming, walking, etc., due to limited availabilities of time and physical space. Exercise equipment suitable for limited-space applications, such as home use, has therefore become highly demanded among a large segment of society. It is generally desirable for such equipment to provide for a wide range of motion and to be adaptive for imposing resistance against movement by a large variety of muscle groups.

Free weights address each of these characteristics. Dumbbells, in particular, have proven to be desirable due to their stand-alone utility. In other words, dumbbells can provide effective resistance training benefits without the requirement of unwieldy supplemental equipment such as elongated weight bars or large weight-training machines.

The relative sizes and mechanical advantages of the body's various muscle groups require that such muscle groups be trained under varying degrees of resistance. Thus, an effective total body workout requires the ability to vary the resistance applied to the muscle groups. This is preferably done in increasing, incremental fashion, commonly known as progressive resistance. In the case of dumbbell training, this requires either a plurality of dumbbells of fixed weight magnitudes, or alternatively the ability to vary the sizes of the weight plates loaded on the dumbbells.

It is therefore desirable to have a means for convenient storage and access to a complete set of dumbbells having varying weights.

It is further desirable to have a means for easy and reliable loading of plates having varying weights onto dumbbell bars.

### SUMMARY OF THE INVENTION

The present invention provides, in one aspect, a weight-training stand that includes a lower section having a plurality of bars affixed thereto and upon which weight-training plates having bores therethrough may be stored, and an upper section connected to the lower section and having at least two arms that extend outwardly for support of dumbbell bars.

In a preferred embodiment of the invention, the lower section includes a horizontal base and a vertical column supported by the base. The bars of the lower section preferably extend horizontally from the vertical column, and are adapted for receiving plates having varying weights, e.g., weights that vary between 2.5 pounds and 25 pounds.

The upper section of the weight-training stand preferably includes two opposing arms that extend outwardly and upwardly at an angle of approximately 30 degrees from the horizon. It is further preferred that each of the arms are connected at one end to the vertical column adjacent the column's upper end, and further include a dumbbell rack connected to the other end of each arm.

Each dumbbell rack preferably has a longitudinal axis that is substantially perpendicular to the arm to which it is connected. It is a further preferred that the weight-training stand include at least one latch member for securing a dumbbell to one of the dumbbell racks.

The present invention also provides, in another aspect, a weight storage stand that includes an upright, load-bearing column, and a plurality of arms that incline outwardly from the column for elevated support of dumbbell bars at horizontally-displaced locations from respective connection points between the column and the stand.

The stand preferably includes bars supported by the column for receiving weight-training plates having bores therethrough. The bars of the stand are adapted for receiving plates having weights that vary between 2.5 pounds and 25 pounds.

The weight-storage stand is, in other elements, similar to the above-described weight-training stand.

### **BRIEF DESCRIPTION OF THE DRAWING(S)**

The manner in which the present invention attains the above recited features, advantages, and objects can be understood with greater clarity by reference to the preferred embodiment(s) thereof which are illustrated in the accompanying drawings.

It is to be noted however, that the appended drawings illustrate only typical embodiment(s) of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

In the drawings:

Figure 1 is a perspective view of a stand for weight training and/or storage in accordance with the present invention;

Figure 2 is a side elevational view of the stand of Figure 1;

Figure 3 is a plan view of the stand of Figure 1; and

Figure 4 is a front elevational view of the stand of Figure 1.

### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)**

Figures 1-4 illustrate a weight-training/storage stand 10 that includes a lower section 12 having a plurality of bars 14 affixed thereto and upon which weight-training plates 16 having bores therethrough may be stored. The stand further includes an upper section 18 connected to the lower section 12, and having at least two arms 20 that extend outwardly for support of dumbbell bars 22.

The lower section 12 includes a horizontal base 24 and a vertical column 26 supported by the base. The vertical column 26 is preferable a hollow tubular member having a square-shaped cross-section. The bars 14 are preferably elongated solid cylinders that extend horizontally from the vertical column 14, and are adapted for receiving plates having varying weights, e.g., weights that vary between 2.5 pounds and 25 pounds. The rack 10 is preferably equipped with six such bars 14, with three extending horizontally from each side of the column 26. Those skilled in the art will appreciate, however, that stand 10 may similarly be formed of three elongated bars that extend through circular openings in the column 26. In alternative embodiments, the stand 10 may also include vertical bars (not shown) extending upwardly from the base 24.

As shown particularly in Figures 1 and 2, the upper section 18 of the weight-training/storage stand 10 includes two opposing arms 20 that extend outwardly and upwardly at an angle  $\alpha$  of approximately 30 degrees from the horizon. Each of the arms 20 are connected at one end 23 to the vertical column 26 adjacent the column's upper end 15. A dumbbell rack 28 is connected to the other end 21 of each arm 20. Each rack 28 consists of a pair of track members 32 connected by a transverse plate 34. Each of the track members 32 is equipped with a pair of spaced, perpendicularly-extending tab members 36 that each cooperates with the respective track member 32 to form a pair of cradles 38a, 38b. Thus, each arm 20 is equipped with a spaced pair of upper cradles 38a and lower cradles 38b, each of which cooperate to hold a dumbbell bar 22 thereacross.

Each dumbbell rack 28 has a longitudinal axis 29 that is substantially perpendicular to the arm 20 to which it is connected, whereby each rack 28 is inclined from the horizon at an angle of approximately 60 degrees. This design employs gravity to assist in keeping the bars 22 in the cradles 38 of the racks 28 (see, e.g., Figure 1). Additionally, the stand 10 includes at least one – and preferably two – spring-loaded wire latches 30 for securing a dumbbell bar 22 to one of the dumbbell racks 28.

The construction of the inventive weight-training/storage rack 10 is extremely durable. In a presently preferred embodiment, the rack is made of a minimum of 11 gauge (1/8 inch thick) steel, and is completely welded with no bolted parts.

The rack 10 is designed to hold two pairs of dumbbell bars 22 and a plurality of weight plates 16. The dumbbell bars may be of the “fixed” or pre-set type, or they may be adapted for adjusting the type and size of the weight plates that are loaded thereon. In the latter case, the dumbbell bars 22 and the (stored) weight plates 16 are used in conjunction with each other. The rack 10 is suitable for use with weight plates ranging in weight from 2.5 pounds up to 25 pounds (or larger).

In order to obtain the desired weight for each pair of dumbbell bars 22, the bars are set atop the racks 28 in the cradles 29 while the weight plates 16 are added to the ends of the bars 22 until the desired amount of weight is achieved for each bar. This enables a dumbbell weight to range from 5 pounds to 80 pounds (or more), in increments of 5 pounds. The weights should preferably be loaded onto each side of a dumbbell bar at the same time to ensure the bars remain

balanced atop the racks 28. The spring-loaded wire latch 30 ensures that the bars remain on the racks while loading, and can accommodate some degree of unbalanced loading (i.e., loading a plate on one side of a bar at a time). The latches 30 are also useful as a safety feature to ensure the bars 22 will remain in place atop the racks 28 while the stand 10 is not in use.

The weight-training/storage rack 10 is particularly adapted for use in areas having limited space. Thus, one of the rack's more desirable features is the small amount of space – particularly the floor space, or “footprint” – needed to use the stand 10. A normally-equipped embodiment of the stand (which may hold up to a 25-pound pair of dumbbells) may have a dimension no more than 36"H x 60"L x 21"W, while preferred embodiment of the rack 10 (which can hold up to 100-pound pair of dumbbells) has a dimension of only 39"H x 24"L x 14"W. This can be a great benefit in applications such as apartments, college dorms, garages, as well as homes and small gyms. The stand may be used in new applications where dumbbell bars and weight plates are being acquired for the first time, but it may also be used with existing dumbbell sets. Such users will particularly benefit from the ability to change weight plates 16 from a normal standing position, since the bars are elevated by racks 28, rather than changing the weight plates by squatting and bending over to access the bars on the floor.

In summary, the inventive weight-training/storage stand 10 is a useful and desirable piece of fitness equipment for men, women, and the whole family, whether into hard core bodybuilding or just merely interested in increased muscle tone and general well-being. The stand may further be painted or coated (e.g., with chrome) as desirable for visual appeal.

In view of the foregoing it is evident that the present invention is well adapted to attain all of the objects and features hereinabove set forth, together with other objects and features which are inherent in the apparatus disclosed herein.

As will be readily apparent to those skilled in the art, the present invention may easily be produced in other specific forms without departing from its spirit or essential characteristics. The present embodiment is, therefore, to be considered as merely illustrative and not restrictive. The scope of the invention is indicated by the claims that follow rather than the foregoing description, and all changes which come within the meaning and range of equivalence of the claims are therefore intended to be embraced therein.